City of Houston
Residential Energy Code Compliance Form
Standard Prescriptive Method – CHAPTER 5 IECC

Part I - Form. ***Complete this form using the tables in Part II, and the instructions in Part III.***

1) Contact Name: / Phone Number: / ( )	**2) Project Address:**	**3) Project Number:**
4) Is your project exempt? ☐ YES - check box below and stop ☐ Historical building – documentation required ☐ Low Energy Building ☐ Unconditioned building ☐ Work does not affect energy compliance ☐ NO - continue	**5) Project Data** Sq. Ft. _____ Project Area Sq. Ft. _____ Total Bldg. Area	**6) Glazing Percentage** *(circle one)* Sq. Ft. _____ New Glazing or Total Glazing Sq. Ft. _____ Above Grade Bldg. Envelope Walls = _____ % Glazing *(Divide new glazing by the above grade wall area and multiply by 100)*
7) Type of Residence ☐ A-1 -- 1 or 2 family dwelling ☐ A-2 -- Multi-Family, more than 1 or 2 family, 3 stories or less in height, including 3 or more townhouse units, or apartments	**8) Using Software?** ☐ YES - *check box, attach report* ☐ ResCheck, ☐ MecCheck ☐ RemRate – HERS #_____ ☐ NO	**9) Scope of work:** (check all that apply) ☐ New Construction ☐ Addition ☐ Remodel ☐ Other: _____

10) Compliance Data The proposed work will affect the following areas: (check all that apply)
☐ Building Envelope ☐ Mechanical ☐ Electrical ☐ Service Water Heating

11) Building Envelope Requirements (Fill in the applicable information or check Not applicable)

A. Insulation *(Check one)*
☐ All insulation meets minimums
☐ Values averaged (If not using software attach calculations)

Element	Area (Sq. Ft.)	Proposed R-value	Not Applicable
Ceiling-Attic			
Ceiling-Roof			
Floor over outside air			
Walls			
Floors			
Basement Walls			
Crawlspace			

B. Glazing *(Check one)*
☐ All glazing meets minimums
☐ Glazing Varies – Values averaged
(If not using software attach calculations)

Element	Area (Sq. Ft.)	Proposed SHGC	Proposed U-Factor	Not Applicable
Windows				
Glass Doors				
Other Glazing				

12) Mechanical Requirements – Table 503.2
All equipment is existing ☐ YES, stop ☐ NO, complete applicable information for new equipment in table below

Equipment Type (i.e. air conditioner/heat)	**Category** (i.e. Split System/Single Pkg)	**Efficiency Rating** (i.e. 10 SEER/ 78% AFUE)

- Piping shall be insulated to the table in Part II.
- Ducts shall be insulated according to Table 503.3.3.3 (2001 Supplement).

Remarks:_____
_____
_____

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II. PART II Basic Code Requirements.

These tables identify the basic energy code requirements for our zone, based on the prescriptive method.

TABLE 502.2.2.4 ENVELOPE REQUIREMENTS (1371 HDD)

Type A-1 Building

% Glazing	Maximum	Minimum					
	Glazing U-factor	Ceiling R-value	Exterior wall R-value	Floor R-value	Basement wall R-value	Slab perimeter R-value and depth	Crawl space R-value
8	Any	R-19	R-11	R-11	R-0	R-0	R-5
12	0.75	R-19	R-11	R-11	R-0	R-0	R-5
15	0.75	R-19	R-11	R-11	R-0	R-0	R-5
18	0.70	R-26	R-13	R-11	R-0	R-0	R-5
20	0.70	R-30	R-13	R-11	R-0	R-0	R-5
25	0.55	R-30	R-13	R-11	R-0	R-0	R-6

Type A-2 Building

20	Any	R-19	R-11	R-11	R-0	R-0	R-5
25	Any	R-19	R-11	R-11	R-0	R-0	R-5
30	0.70	R-19	R-11	R-11	R-0	R-0	R-4

TABLE 503.3.3.1 MINIMUM PIPE INSULATION

(thickness in inches)

Piping System Types	Fluid Temp. Range °F	Pipe Sizes [a,c]					
		Runouts up to 2"[b]	1" and less	1.25" to 2"	2.5" to 4"	5" to 6"	8" and larger
Heating Systems							
Steam and Hot Water:							
High pressure/temperature	306-450	1 ½	2 ½	2 ½	3	3 ½	3 ½
Medium pressure/temperature	251-305	1 ½	2	2 ½	2 ½	3	3
Low pressure/temperature	201-250	1	1 ½	1 ½	2	2	2
Low temperature	106-200	½	1	1	1 ½	1 ½	1 ½
Steam and Condensate (for feed water)	Any	1	1	1 ½	2	2	2
Cooling Systems							
Chilled water, refrigerant and brine:	40-55	½	½	¾	1	1	1
	Below 40	1	1	1 ½	1 ½	1 ½	1 ½

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, °C = [(°F)-32]/1.8.

a. For piping exposed to outdoor air, increase insulation thickness by 0.5 inch.
b. Runouts not exceeding 12 feet in length to individual terminal units.
c. Inside pipe diameter.

AVERAGE WEIGHTED AREA CALCULATION EXAMPLE

Given: 4 Windows

2 each of Window Type 1 (W_1) = 15 square feet, U-factor = .72
2 each of Window Type 2 (W_2) = 21 square feet, U-factor = .30

Calculation for average weighted area U-factor:

$$\frac{(15 \times .72) + (15 \times .72) + (21 \times .30) + (21 \times .30)}{15+15+21+21} = \frac{35.7}{72}$$

35.7 / 72 =.495833

Average weighted area U= .496

HOUSTON DESIGN CRITERIA

Condition	Value
Winter, Design Dry Bulb	28
Summer, Design Dry Bulb	96
Summer, Design Wet Bulb	80
Degree days heating	1371
Degree days cooling	3058
Climate Zone	3b

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III. Form Instructions. ***Use these instructions to complete Part I of this form. The instructions are numbered to correspond with the applicable number on the form.***

Section	Instructions or information
1)	Fill in the name and contact number of the person completing this form. The person who completes this form should have knowledge of the project and the information contained in this form. If a question arises about the plan or form the plan analyst will contact this person at this number.
2)	Enter the project address.
3)	Enter the City of Houston assigned 8-digit project number.
4)	The code allows for certain buildings to be exempted from Energy Code compliance. If the building is classified as historical and designated as such, or as a low energy building using less than 1watt/sq. ft. or 3.4 Btu/hr, or the work does not affect the energy compliance, the building is exempt from compliance. Check the applicable situation and attach this form to the plans—there is no need to continue this form if the building is exempt. Documentation must be provided for the historical exemption.
5)	Enter the square feet of the area that is covered in the permit on the top line. Enter the square feet of the entire building (if different) on the lower line.
6)	Enter the square feet of all of the windows and glass in the building envelope on the top line. For each door with 50% or more glass, figure the area using the entire door area. For doors with less than 50% glass use only the area of the glass. Enter the square footage of the building envelope wall area surrounding the conditioned space on the second line. Using the two numbers calculate the percentage of glazing with the formula shown in this section and enter the correct percentage in the shaded area. As an alternate for additions, when calculating the glazing, you can take the values and areas for all of the existing windows and walls if preferred, or just calculate the areas of new windows and walls. **Note:** The U-factor of solid doors must be .35 or lower.
7)	Check the type of residence. ***Type A-1*** residences include 1 and 2 family dwellings. ***Type A-2*** residences include multifamily dwellings 3 stories or less in height, townhouses (3 or more connected units).
8)	If you are using software to demonstrate compliance, check YES and the applicable software name. Attach the summary report If you are not using Software, check NO.
9)	Check the type of work that you will be doing at this address.
10)	Check the applicable boxes for the Energy Systems that will be affected. ***Building Envelope*** systems are the structural components of the building that separate conditioned and unconditioned space, i.e. roof, walls, windows, doors and glass. ***Mechanical*** applies to the heating, ventilating, and air-conditioning systems inclusive of ducts and refrigerant piping. ***Electrical*** applies to the energy consuming elements of the building measured in watts, including light fixtures, receptacles and lighting loads. ***Service water heating*** applies to the supply of hot water for purposes other than comfort heating. This would include piping and equipment.
11)	Fill in these tables using the applicable tables in the code based on the percentage of glazing as figured in number 6 of this form, or fill in the applicable values from the software report, or hand calculations. Insert the square feet of the insulation and glazing as well as the applicable R-values, U-factors, or SHGC. Check whether the figures are averaged or minimums.
12)	Fill in the type, category and efficiency rating information for any new mechanical equipment being installed. If no new mechanical equipment is being installed or replaced check the box for “all equipment is existing”.